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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/601,582	12/04/2000	Qingyun Liu	20052YP	8319

210 7590 03/05/2003

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EXAMINER
KAUFMAN, CLAIRE M

ART UNIT	PAPER NUMBER
1646	

DATE MAILED: 03/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/601,582	Applicant(s) LIU ET AL.	
	Examiner Claire M. Kaufman	Art Unit 1646	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 August 2002 and 05 November 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 4-20* is/are pending in the application.

4a) Of the above claim(s) *6,10-15 and 17* is/are withdrawn from consideration.

5)☒ Claim(s) *1,2,4,5,7 and 18-20* is/are allowed.

6)☒ Claim(s) *8,9,14 and 16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1, 2, 4-20* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

The amendments filed8/2/02 and 11/5/02 have been entered.

Response to Arguments

The rejections of claim 3 (112, first and second paragraphs, and 35 USC 102(b)) are moot in view of the cancellation of the claim.

The rejection of claims 16, 18, and 19 under 35 USC 112, second paragraph, is withdrawn in view of the amendment to the claims.

The rejection of claim 18 under 35 USC 112, first paragraph enablement, is withdrawn in view of the amendment to the claim.

The rejection of claims 14, 16 and 19 under 35 USC 112, first paragraph written description, is withdrawn in view of the amendment to the claims.

The rejection of claims 14 and 16 under 35 U.S.C. 102(a) as being anticipated by Jones et al. (Nature 396: 674-678, Dec. 1998) or Kaupmann et al. (Nature 396: 683-687, Dec. 1998) or Kuner et al. (Science 283: 74-77, Jan. 1999) is withdrawn in view of the amendment to the claims.

Claim Objections

Claim 19 is objected to because of the following informalities: there is a "_" in the last line following "heterologous". Appropriate correction is required.

Claim Rejections - 35 USC § 102

Claims 8, 9, 14 and 16 remain rejected under 35 U.S.C. 102(a) as being anticipated by White et al. (Nature 396: 679-682, Dec. 1998) for the reasons set forth in the previous Office action (paper #5, page 9).

Applicants argue that White et al. do not have the same sequence as HG20 of SEQ ID NO:1 of the instant invention. The argument has been fully considered, but is not persuasive. SEQ ID NO:1 of the instant application is a DNA sequence not a protein sequence. The protein sequence of HG20 appears in SEQ ID NO:2 of this application. When comparing SEQ ID NO:2

and the sequence of White et al. it can be shown that both sequences have Arg at positions 44, 48 and 75, not glutamate as stated (page 6, second paragraph, of Applicants' response). Attached is the USPTO protein sequence alignment of SEQ ID NO:2 (HG20) and the GABABR2 of White et al. The sequences are identical and White et al. serves as an anticipatory reference.

Conclusion

Claims 1, 2, 4, 5, 7, 18, 19 and 20 are allowable. It is noted that the basis for claim 20 can be found on page 20, line 2 of the specification.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Claire M. Kaufman, whose telephone number is (703) 305-5791. Dr. Kaufman can generally be reached Monday through Thursday from 8:30AM to 12:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yvonne Eyler, can be reached at (703) 308-6564.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Official papers filed by fax should be directed to (703) 308-4242. Faxed draft or informal communications with the examiner should be directed to (703) 308-0294. NOTE: If

applicant *does* submit a paper by fax, the original signed copy should be retained by the applicant or applicant's representative. NO DUPLICATE COPIES SHOULD BE SUBMITTED so as to avoid the processing of duplicate papers in the Office. **Please** advise the examiner at the telephone number above before facsimile transmission.

Claire M. Kaufman, Ph.D.
Patent Examiner, Art Unit 1646
March 5, 2003

LORRAINE SPECTOR
PRIMARY EXAMINER

GBR2_HUMAN COMPARISON WITH SEQ ID NO:2 of Instant Application

ID GBR2_HUMAN STANDARD; PRT; 941 AA.
AC O75899; O75974; O75975; Q9UNS9; Q9UNR1; Q9P1R2;
DT 20-AUG-2001 (Rel. 40, Created)
DT 20-AUG-2001 (Rel. 40, Last sequence update)
DT 20-AUG-2001 (Rel. 40, Last annotation update)
DE GAMMA-AMINOBUTYRIC ACID TYPE B RECEPTOR, SUBUNIT 2 PRECURSOR (GABA-B
DE RECEPTOR 2) (GABA-B-R2) (GB2) (GABABR2) (G PROTEIN-COUPLED RECEPTOR
DE 51) (GPR 51) (HG20).
GN GABBR2 OR GPR51.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A. (ISOFORM 2A).
RC TISSUE=Cerebellum;
RX MEDLINE=99087321; PubMed=9872316;
RA White J.H., Wise A., Main M.J., Green A., Fraser N.J., Disney G.H.,
RA Barnes A.A., Emson P., Foord S.M., Marshall F.H.;
RT "Heterodimerization is required for the formation of a functional
RT GABA(B) receptor.";
RL Nature 396:679-682(1998).
RN [2]
RP PARTIAL SEQUENCE FROM N.A. (ISOFORMS 2A; 2B AND 2C).
RC TISSUE=Brain;
RX MEDLINE=20193514; PubMed=10727622;
RA Clark J.A., Mezey E., Lam A.S., Bonner T.I.;
RT "Distribution of the GABA(B) receptor subunit gb2 in rat CNS.";
RL Brain Res. 860:41-52(2000).
RN [3]
RP SEQUENCE FROM N.A. (ISOFORM 2A).
RA Liu M., Parker R., McCrea K., Watson J., Baker E., Sutherland G.,
RA Herzog H.;
RT "Cloning and characterization of a novel human GABA-B receptor subtype
RT with high affinity for GABA and low affinity for baclofen.";
RL Submitted (NOV-1998) to the EMBL/GenBank/DDBJ databases.
RN [4]
RP SEQUENCE FROM N.A. (ISOFORM 2A).
RC TISSUE=Hippocampus;
RA Borowsky B., Laz T., Gerald C.;
RL Submitted (JAN-1999) to the EMBL/GenBank/DDBJ databases.
RN [5]
RP SEQUENCE FROM N.A. (ISOFORM 2A).
RC TISSUE=Fetal brain;
RX MEDLINE=99189236; PubMed=10087195;
RA Ng G.Y.K., McDonald T., Bonnert T., Rigby M., Heavens R., Whiting P.,
RA Chateauneuf A., Coulombe N., Kargman S., Caskey T., Evans J.F.,
RA O'Neill G.P., Liu Q.;
RT "Cloning of a novel G-protein-coupled receptor GPR 51 resembling GABAB
RT receptors expressed predominantly in nervous tissues and mapped
RT proximal to the hereditary sensory neuropathy type 1 locus on
RT chromosome 9.";
RL Genomics 56:288-295(1999).
RN [6]
RP SEQUENCE FROM N.A. (ISOFORM 2A), AND VARIANTS PHE-628 AND ALA-869.
RC TISSUE=Brain;

RX MEDLINE=99263199; PubMed=10328880;
RA Martin S.C., Russek S.J., Farb D.H.;
RT "Molecular identification of the human GABABR2: cell surface
RT expression and coupling to adenylyl cyclase in the absence of
RT GABABR1.";
RL Mol. Cell. Neurosci. 13:180-191(1999).
RN [7]
RP R1A-R2 INTERACTION.
RX MEDLINE=99175124; PubMed=10075644;
RA Ng G.Y.K., Clark J., Coulombe N., Ethier N., Hebert T.E., Sullivan R.,
RA Kargman S., Chateauneuf A., Tsukamoto N., McDonald T., Whiting P.,
RA Mezey E., Johnson M.P., Liu Q., Kolakowski L.F. Jr., Evans J.F.,
RA Bonner T.I., O'Neill G.P.;
RT "Identification of a GABAB receptor subunit, gb2, required for
RT functional GABAB receptor activity.";
RL J. Biol. Chem. 274:7607-7610(1999).
RN [8]
RP R1A-R2 INTERACTION.
RX MEDLINE=20237752; PubMed=10773016;
RA Sullivan R., Chateauneuf A., Coulombe N., Kolakowski L.F. Jr.,
RA Johnson M.P., Hebert T.E., Ethier N., Belley M., Metters K.,
RA Abramovitz M., O'Neill G.P., Ng G.Y.K.;
RT "Coexpression of full-length gamma-aminobutyric Acid(B) (GABA(B))
RT receptors with truncated receptors and metabotropic glutamate
RT receptor 4 supports the GABA(B) heterodimer as the functional
RT receptor.";
RL J. Pharmacol. Exp. Ther. 293:460-467(2000).
CC -!- FUNCTION: RECEPTOR FOR GABA. THE ACTIVITY OF THIS RECEPTOR IS
CC MEDIATED BY G-PROTEINS THAT INHIBITS ADENYLYL CYCLASE ACTIVITY,
CC STIMULATES PHOSPHOLIPASE A2, ACTIVATES POTASSIUM CHANNELS,
CC INACTIVATES VOLTAGE-DEPENDENT CALCIUM-CHANNELS AND MODULATES
CC INOSITOL PHOSPHOLIPIDS HYDROLYSIS. PLAYS A CRITICAL ROLE IN THE
CC FINE-TUNING OF INHIBITORY SYNAPTIC TRANSMISSION. PRE-SYNAPTIC
CC GABA-B-R INHIBIT NEUROTRANSMITTER RELEASE BY DOWN-REGULATING
CC HIGH-VOLTAGE ACTIVATED CALCIUM CHANNELS, WHEREAS POSTSYNAPTIC
CC GABA-B-R DECREASE NEURONAL EXCITABILITY BY ACTIVATING A PROMINENT
CC INWARDLY RECTIFYING POTASSIUM (KIR) CONDUCTANCE THAT UNDERLIES THE
CC LATE INHIBITORY POSTSYNAPTIC POTENTIALS. NOT ONLY IMPLICATED IN
CC SYNAPTIC INHIBITION BUT ALSO IN HIPPOCAMPAL LONG-TERM
CC POTENTIATION, SLOW WAVE SLEEP, MUSCLE RELAXATION AND
CC ANTINOCICEPTION.
CC -!- SUBUNIT: HETERODIMER OF GABA-B-R1 AND GABA-B-R2. NEITHER OF WHICH
CC IS EFFECTIVE ON ITS OWN AND HOMODIMERIC ASSEMBLY DOES NOT SEEM TO
CC HAPPEN.
CC -!- SUBCELLULAR LOCATION: INTEGRAL MEMBRANE PROTEIN. MOREOVER
CC COEXPRESSION OF GABA-B-R1 AND GABA-B-R2 APPEARS TO BE A
CC PREREQUISITE FOR MATURATION AND TRANSPORT OF GABA-B-R1 TO THE
CC PLASMA MEMBRANE.
CC -!- ALTERNATIVE PRODUCTS: 3 ISOFORMS; 2A (SHOWN HERE), 2B AND 2C; ARE
CC PRODUCED BY ALTERNATIVE SPLICING.
CC -!- TISSUE SPECIFICITY: HIGHLY EXPRESSED IN BRAIN, ESPECIALLY IN
CC CEREBRAL CORTEX, THALAMUS, HIPPOCAMPUS, FRONTAL, OCCIPITAL AND
CC TEMPORAL LOBE, OCCIPITAL POLE AND CEREBELLUM, FOLLOWED BY CORPUS
CC CALLOSUM, CAUDATE NUCLEUS, SPINAL CORD, AMYGDALA AND MEDULLA.
CC WEAKLY EXPRESSED IN HEART, TESTIS AND SKELETAL MUSCLE.
CC -!- DOMAIN: ALPHA-HELICAL PARTS OF THE C-TERMINAL INTRACELLULAR REGION
CC MEDIATE HETERODIMERIC INTERACTION WITH GABA-B RECEPTOR 1.

```
CC   -!- SIMILARITY: BELONGS TO FAMILY 3 OF G-PROTEIN COUPLED RECEPTORS.
CC       GABA-B RECEPTOR SUBFAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; AJ012188; CAA09942.1; -.
DR   EMBL; AF056085; AAC63228.1; -.
DR   EMBL; AF095723; AAC63383.1; -.
DR   EMBL; AF095724; AAC63384.1; -.
DR   EMBL; AF095784; AAD30389.1; -.
DR   EMBL; AF074483; AAD03336.1; -.
DR   EMBL; AF069755; AAC99345.1; -.
DR   EMBL; AF099033; AAD45867.1; -.
DR   InterPro; IPR001828; ANF_receptor.
DR   InterPro; IPR000337; GPCR_Mgr.
DR   Pfam; PF00003; 7tm_3; 1.
DR   Pfam; PF01094; ANF_receptor; 1.
DR   PRINTS; PR00248; GPCRMGR.
DR   PRINTS; PR01176; GABABRECEPTR.
DR   PRINTS; PR01177; GABAB1RECPTR.
DR   PRINTS; PR01178; GABAB2RECPTR.
DR   PROSITE; PS50099; PRO_RICH; 1.
DR   PROSITE; PS00979; G_PROTEIN_RECEP_F3_1; FALSE_NEG.
DR   PROSITE; PS00980; G_PROTEIN_RECEP_F3_2; FALSE_NEG.
DR   PROSITE; PS00981; G_PROTEIN_RECEP_F3_3; FALSE_NEG.
DR   PROSITE; PS50259; G_PROTEIN_RECEP_F3_4; 1.
KW   G-protein coupled receptor; Transmembrane; Glycoprotein; Signal;
KW   Postsynaptic membrane; Coiled coil; Alternative splicing;
KW   Polymorphism.
FT   SIGNAL        1     41      POTENTIAL.
FT   CHAIN        42    941      GAMMA-AMINOBUTYRIC ACID TYPE B RECEPTOR,
FT                               SUBUNIT 2.
FT   DOMAIN       42    483      EXTRACELLULAR (POTENTIAL).
FT   TRANSMEM    484    504      I (POTENTIAL).
FT   DOMAIN      505    522      CYTOPLASMIC (POTENTIAL).
FT   TRANSMEM    523    543      II (POTENTIAL).
FT   DOMAIN      544    551      EXTRACELLULAR (POTENTIAL).
FT   TRANSMEM    552    572      III POTENTIAL.
FT   DOMAIN      573    597      CYTOPLASMIC (POTENTIAL).
FT   TRANSMEM    598    618      IV (POTENTIAL).
FT   DOMAIN      619    654      EXTRACELLULAR (POTENTIAL).
FT   TRANSMEM    655    675      V (POTENTIAL).
FT   DOMAIN      676    691      CYTOPLASMIC (POTENTIAL).
FT   TRANSMEM    692    712      VI (POTENTIAL).
FT   DOMAIN      713    720      EXTRACELLULAR (POTENTIAL).
FT   TRANSMEM    721    741      VII (POTENTIAL).
FT   DOMAIN      742    941      CYTOPLASMIC (POTENTIAL).
FT   DOMAIN      781    819      COILED COIL (POTENTIAL).
FT   CARBOHYD     90     90      N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD    298    298      N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD    389    389      N-LINKED (GLCNAC. . .) (POTENTIAL).
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FT   CARBOHYD     404     404       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   CARBOHYD     453     453       N-LINKED (GLCNAC. . .) (POTENTIAL).
FT   VARSPLIC     902     927       MISSING (IN ISOFORM 2B).
FT   VARSPLIC     929     941       HVPPSFRVMVSGL -> TTLGRGVCCRNTVGSGCGEAGHHG
FT                                  WPLRTTRMALRWTGRGRGRLGT (IN ISOFORM 2C).
FT
FT   VARIANT      628     628       Y -> F.
FT                                  /FTId=VAR_010148.
FT
FT   VARIANT      869     869       T -> A.
FT                                  /FTId=VAR_010149.
FT
FT   CONFLICT       6       6       S -> R (IN REF. 5).
FT   CONFLICT      12      12       P -> R (IN REF. 5).
FT   CONFLICT     424     424       G -> E (IN REF. 3).
SQ   SEQUENCE   941 AA;  105821 MW;  09F1773DB0673C5D CRC64;
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  Query Match             100.0%;  Score 4942;  DB 1;  Length 941;
  Best Local Similarity   100.0%;  Pred. No. 0;
  Matches  941;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 MASPRSSGQPGPPPPPPPPPARLLLLLLLPLLLPLAPGAWGWARGAPRPPPSSPPLSIMG 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 MASPRSSGQPGPPPPPPPPPARLLLLLLLPLLLPLAPGAWGWARGAPRPPPSSPPLSIMG 60

Qy      61 LMPLTKEVAKGSIGRGVLPAVELAIEQIRNESLLRPYFLDLRLYDTECDNAKGLKAFYDA 120
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 LMPLTKEVAKGSIGRGVLPAVELAIEQIRNESLLRPYFLDLRLYDTECDNAKGLKAFYDA 120

Qy     121 IKYGPNHLMVFGGVCPSVTSIIAESLQGWNLVQLSFAATTPVLADKKKYPYFFRTVPSDN 180
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     121 IKYGPNHLMVFGGVCPSVTSIIAESLQGWNLVQLSFAATTPVLADKKKYPYFFRTVPSDN 180

Qy     181 AVNPAILKLLKHYQWKRVGTLTQDVQRFSEVRNDLTGVLYGEDIEISDTESFSNDPCTSV 240
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     181 AVNPAILKLLKHYQWKRVGTLTQDVQRFSEVRNDLTGVLYGEDIEISDTESFSNDPCTSV 240

Qy     241 KKLKGNDVRIILGQFDQNMAAKVFCCAYEENMYGSKYQWIIPGWYEPSWWEQVHTEANSS 300
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     241 KKLKGNDVRIILGQFDQNMAAKVFCCAYEENMYGSKYQWIIPGWYEPSWWEQVHTEANSS 300

Qy     301 RCLRKNLLAAMEGYIGVDFEPLSSKQIKTISGKTPQQYEREYNNKRSGVGPSKFHGYAYD 360
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     301 RCLRKNLLAAMEGYIGVDFEPLSSKQIKTISGKTPQQYEREYNNKRSGVGPSKFHGYAYD 360

Qy     361 GIWVIAKTLQRAMETLHASSRHQRIQDFNYTDHTLGRIILNAMNETNFFGVTGQVVFRNG 420
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     361 GIWVIAKTLQRAMETLHASSRHQRIQDFNYTDHTLGRIILNAMNETNFFGVTGQVVFRNG 420

Qy     421 ERMGTIKFTQFQDSREVKVGEYNAVADTLEIINDTIRFQGSEPPKDKTIILEQLRKISLP 480
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     421 ERMGTIKFTQFQDSREVKVGEYNAVADTLEIINDTIRFQGSEPPKDKTIILEQLRKISLP 480

Qy     481 LYSILSALTILGMIMASAFLFFNIKNRNQKLIKMSSPYMNNLIILGGMLSYASIFLFGLD 540
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     481 LYSILSALTILGMIMASAFLFFNIKNRNQKLIKMSSPYMNNLIILGGMLSYASIFLFGLD 540

Qy     541 GSFVSEKTFETLCTVRTWILTVGYTTAFGAMFAKTWRVHAIFKNVKMKKKIIKDQKLLVI 600
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
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Db    541 GSFVSEKTFETLCTVRTWILTVGYTTAFGAMFAKTWRVHAIFKNVKMKKKIIKDQKLLVI 600

Qy    601 VGGMLLIDLCILICWQAVDPLRRTVEKYSMEPDPAGRDISIRPLLEHCENTHMTIWLGIV 660
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    601 VGGMLLIDLCILICWQAVDPLRRTVEKYSMEPDPAGRDISIRPLLEHCENTHMTIWLGIV 660

Qy    661 YAYKGLLMLFGCFLAWETRNVSIPALNDSKYIGMSVYNVGIMCIIGAAVSFLTRDQPNVQ 720
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    661 YAYKGLLMLFGCFLAWETRNVSIPALNDSKYIGMSVYNVGIMCIIGAAVSFLTRDQPNVQ 720

Qy    721 FCIVALVIIFCSTITLCLVFVPKLITLRTNPDAATQNRRFQFTQNQKKEDSKTSTSVTSV 780
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    721 FCIVALVIIFCSTITLCLVFVPKLITLRTNPDAATQNRRFQFTQNQKKEDSKTSTSVTSV 780

Qy    781 NQASTSRLEGLQSENHRLRMKITELDKDLEEVTMQLQDTPEKTTYIKQNHYQELNDILNL 840
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    781 NQASTSRLEGLQSENHRLRMKITELDKDLEEVTMQLQDTPEKTTYIKQNHYQELNDILNL 840

Qy    841 GNFTESTDGGKAILKNHLDQNPQLQWNTTEPSRTCKDPIEDINSPEHIQRRLSLQLPILH 900
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    841 GNFTESTDGGKAILKNHLDQNPQLQWNTTEPSRTCKDPIEDINSPEHIQRRLSLQLPILH 900

Qy    901 HAYLPSIGGVDASCVSPCVSPTASPRHRHVPPSFRVMVSGL 941
          |||||||||||||||||||||||||||||||||||||||||||
Db    901 HAYLPSIGGVDASCVSPCVSPTASPRHRHVPPSFRVMVSGL 941
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